

SCET Workshop 2022



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QCD anatomy of photon-isolation

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In order to differentiate photons produced from different origins at hadrons collider, it is necessary to impose some isolation requirements. For cones with small radius R , photon isolation effect can be captured by a fragmentation function describing the fragmentation of a parton into a photon accompanied by soft radiation. We computed these fragmentation functions for fixed energy cone and Frixione cone to gain a better understanding of the effect of the isolation parameters on the cross section of $pp \rightarrow \gamma + X$. The fragmentation function prediction is compared to the NLO predictions. Finally, we resum the leading logarithms of R and of ϵ_γ the ratio of energy inside the cone to the photon energy and compared it to the measurement performed at ATLAS.

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